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4 JAN 1950

Mr. Howland H. Sargeant
 Deputy Assistant Secretary of State
 for Public Affairs
 U. S. Department of State
 Washington 25, D. C.

CLASSIFIED BY: 2011
 NEXT REVIEW DATE: 2011
 AUTH: HR 70-2
 DATE: 4/31/91 REVIEWER:

Dear Mr. Sargeant:

STAT

There is transmitted herewith a progress report on the study of the USSR activities in jamming the Voice of America broadcasts, which is being done by Central Intelligence Agency with the cooperation of the Departmental agencies. This report is in the nature of a historical survey of the situation to provide background for estimates of the Russian intentions in relation to the jamming of the Voice of America and other important telecommunications systems and to serve as a basis for continuing and expanding studies.

The history of the jamming activity, the thorough and systematic nature in which it has been organized, and its present extent, certainly indicates a major effort on the part of the USSR. The system appears to have been organized such that any international communication system in the frequency bands between approximately five and twenty megacycles can be jammed with types of signals designed to be most effective against the particular communication system. The signals available include random noise. The current jamming program appears to have great utility to the USSR for at least three purposes:

- a. The development of techniques and equipment and the training of transmitter, receiver and control operators in techniques of rapid interception and jamming of signals.
- b. The blocking of a major portion of the information addressed to the people of the USSR through the Voice of America broadcasts.
- c. The forcing of disclosure on our part of counter jamming measures and the development of new monitoring and jamming techniques to counter these measures, as applied at the Voice

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of America Stations. (This is a very important objective in any electronic countermeasure activity).

Points a. and c. both conspire to greatly enhance the USSR capabilities for jamming any type of communication should they elect to extend their activities to other services.

* *but*
Attempts to determine the intent of the USSR to extend the jamming to other communications systems have, so far, proven futile. A series of experiments, established with the cooperation of the technical people at the Voice of America in New York, yielded negative results. A further series of experiments will be proposed at the convenience of the technical activities of Voice of America shortly after the first of January 1950. Rumors to the effect that organized jamming has already been extended to other services appear unfounded.

* *but*
Plans are now under way whereby a major increase will be effected in the technical capabilities of the Department of Defense to observe communication and jamming signals of all types, in order to more effectively determine their characteristics and the location of the signal sources. This, unfortunately, is a large scale effort which will not begin to produce additional information for a matter of months.

Stepping outside the strict responsibilities of Central Intelligence Agency for a moment, I would like to comment on possible remedial measures which might be effected to mitigate the jamming. Increases in transmitter power and increases in the directivity of the transmitting antennas both operate to increase the signal in the service areas.

Increases in transmitter power, of course, increase the signal intensity proportional to the square root of the power increase, whereas antenna directivity increases the signal without power increase. Further increase in effectiveness can be achieved by locating as many of the transmitters as possible such that they are the minimum distance from the proposed service areas consistent with the requirements of sky-wave transmission under the conditions of geography, frequency, sun spot activity, daylight, etc., which prevail during the desired hours of operation. This latter factor as an aid to location of the transmitters cannot be over stressed as the USSR is taking every advantage of sky-wave transmission effects to jam the intended service areas.

So long as the receivers are not under the control of US authorities the conventional amplitude system of modulation must continue in use and these counter jamming methods which might be called "brute force methods" are about the only solutions which are available, as most of the advanced anti-jamming measures developed during the war involved modifications and improvements to receivers and receiving antennas.

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Central Intelligence Agency is continuing its study of this problem and is making every effort to increase the strength of the organization producing this type of intelligence.

Sincerely yours,

Signed - via CR 4/50

R. H. HILLENKOETTER
REAR ADMIRAL, USN
DIRECTOR OF CENTRAL INTELLIGENCE

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